MotifBio

Corporate Overview

Master Investor Show

25 March 2017

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"… the world is heading towards a post-antibiotic era in which common infections will once again kill. If current trends continue, sophisticated interventions, like organ transplantation, joint replacements, cancer chemotherapy, and care of pre-term infants, will become more difficult or even too dangerous to undertake. **This may even bring the end of modern medicine as we know it.** We need to act now to make sure this does not happen."
Dr. Margaret Chan
Director-General of the World Health Organization
European Union Ministerial Conference on Antimicrobial Resistance

Source: World Health Organization, Remarks at a high-level dialogue on antimicrobial resistance with UN Member States, New York, USA, 18 April 2016.

Bad Bugs Need Drugs

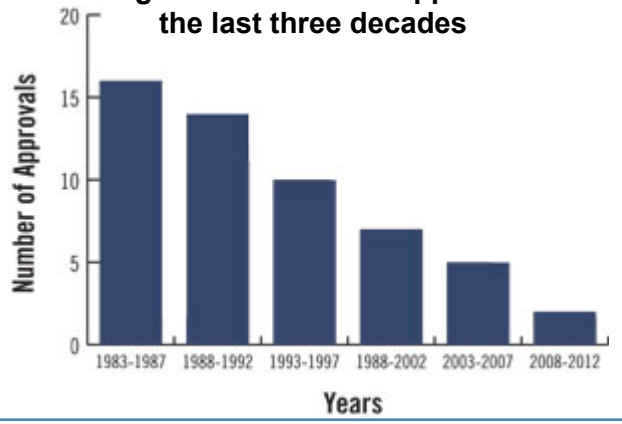
10x'20

Ten new ANTIBIOTICS by 2020

"Bad Bugs Need Drugs" IDSA Initiative

- Drug-resistant infections and related morbidity and mortality are on the rise
- There were few antibiotics in the pipeline offering benefits over existing drugs in 2010
- IDSA supports development of 10 new systemic antibiotics by 2020

Declining rate of antibiotic approvals over the last three decades



Source: Cynthia Sears, M.D., Bad Bugs, Need Drugs.

Source: Spellberg et al.; BCIQ: BioCentury Online Intelligence

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Motif Bio Antibiotic Development Overview

✓ **Near-term Product Opportunity**	**Iclaprim**, a novel antibiotic targeting multi-drug resistant Gram-positive bacteria has been granted QIDP designation for ABSSSI and HABP Two Phase 3 trials currently enrolling patients; data read-out expected in 2Q2017 (REVIVE-1), 2H2017 (REVIVE-2)
✓ **Significant Commercial Potential**	Addressing critical unmet need to treat serious and life-threatening ABSSSI and HABP/VABP infections in hospitalized patients with renal impairment
✓ **Differentiated Product Profile**	Under-utilized MOA with data supporting clinical value of **iclaprim**, especially in patients with renal impairment
✓ **Extensive Track Record**	Experienced team brings relevant clinical, scientific, regulatory, manufacturing, financial, commercial expertise
✓ **Multiple Growth Catalysts**	Near- and mid-term milestones, including Fast Track Status and Priority Review for **iclaprim**, offer multiple opportunities for value creation

QIDP = Qualified Infectious Disease Product

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Late Stage Pipeline

Product Candidate	Indications	Stage of Development					Upcoming Milestone
		Discovery	Preclinical	Phase 1	Phase 2	Phase 3	
Iclaprim (IV)	ABSSSI					***REVIVE–1***	Data readout expected in 2Q2017
						REVIVE–2	Data readout expected in 2H2017
	HABP / VABP					***INSPIRE***	Complete Phase 3 preparations by 1Q2017
	Pediatric Indications						Preclinical and formulation work ongoing
MTF-101 (IV/ oral)	Osteomyelitis, Prosthetic Joint Infection						Preclinical and formulation work ongoing

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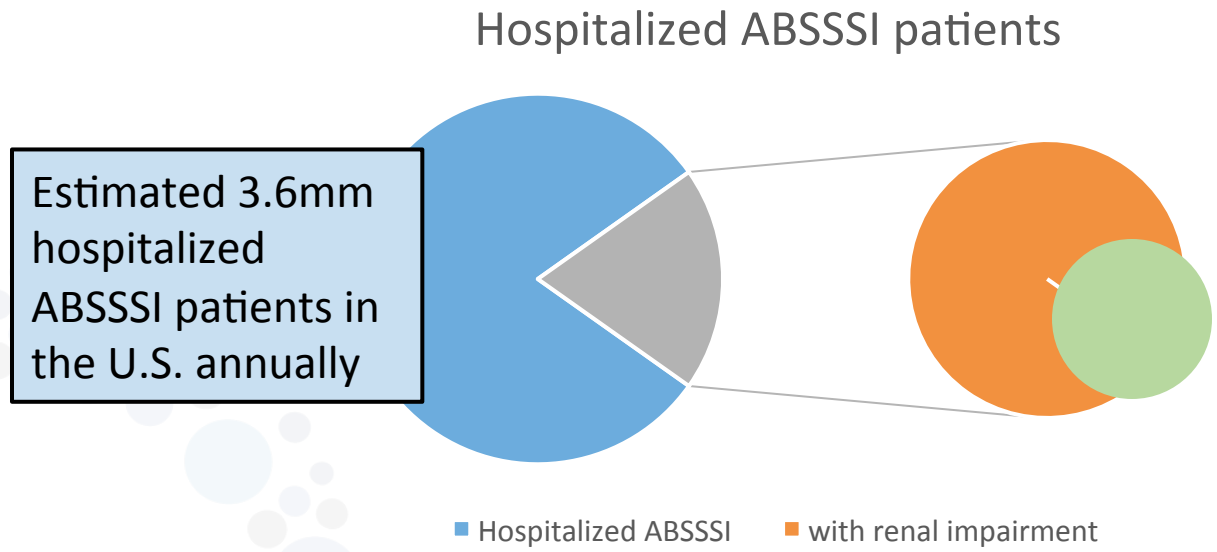
High Unmet Need – Hospitalized ABSSSI Patients with Renal Impairment is a Sizeable and Growing Segment

- Up to 26% of hospitalized patients with ABSSSI have renal impairment
  - According to market research, many hospital based clinicians expect the percentage of hospitalized ABSSSI patients with renal impairment to grow
  - Diabetes is a common co-morbidity in ABSSSI patients with renal impairment



Estimated 3.6mm hospitalized ABSSSI patients in the U.S. annually

Up to 936,000 (26%) have renal impairment

Roughly 25-35% of patients with renal impairment have diabetes

Halilovic et al, Journal of Infection (2012) **65**, 128-134 (n = 106), evaluable patients hospitalized with cellulitis/cutaneous abscess
Engemann et al, Adverse outcomes attributable to MRSA surgical site infections, Clinical Infectious Diseases, 2003;
Carratala et al, Factors associated with complications, European Journal of Clinical Microbiological Infectious Disease, 2003.
Assessment of Iclaprim Commercial Opportunity in the Gram-Positive Antibiotic Hospital Market, BAL Pharma Consulting, LLC (May 18, 2016)
ASSIST post hoc analysis of patients with renal impairment

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Iclaprim: Potential for Empiric Therapy of Hospitalized ABSSSI Patients with Renal Impairment/Diabetes

Empiric Treatment Considerations: Hospitalized ABSSSI with Renal Impairment/Diabetes	Iclaprim	Standard of Care Gram Positive Hospital Antibiotics[1]		
		Vancomycin	Daptomycin	Linezolid
Mechanism of Action	**Underutilized MOA Diaminopyrimidine**	Glycopeptide	Lipopeptide	Oxazolidinone
Cidality (*in vitro*)	**Rapidly cidal;**	Cidal	Cidal	Static
MRSA in-vitro activity MIC_{90} / MIC_{50} µg/mL n=582 isolates[2]	**0.5/0.06**	1/1	0.5/.25	1/1
Spectrum of Activity	**Gram +**	Gram +	Gram +	Gram +
Propensity for Resistance	**Low propensity for resistance**	MIC "creep," VISA, VRSA	Resistance reported	Resistance reported
Safety; considerations for use in diabetics	**Low incidence of QTc prolongation and AEs leading to discontinuation (2.4%)***	Nephrotoxic, ototoxic, infusion related events	Myopathy, rhabdomyolysis; eosinophilic pneumonia; peripheral neuropathy	Myelo-suppression serotonin syndrome; hypoglycemia when insulin or oral hypoglycemics are co-administered
Use in Renal Impairment	**No dosage adjustment or monitoring/no nephrotoxicity observed**	Nephrotoxicity risk especially with higher doses (*eg.* obese patients); dosage adjustment	Dosage adjustment required; decreased efficacy with moderate renal impairment	Primary metabolites accumulate; increases with severity of renal dysfunction; more frequent adverse events[3]
Dosing	**Fixed**	Weight based, monitoring required	Weight based; high drug cost in obese patients	Fixed

1) Based on PIs for vancomycin, daptomycin and linezolid [2] Farrell, David J. Ph.D., et al. 2012-2014 Antimicrobial Surveillance of Iclaprim, JMI Laboratories (August 2015). *Exposure in over 600 patients/healthy volunteers; (3) Source: Cattaneo et al, Drug monitoring and individual dose optimization of antimicrobial drugs: oxazolidinones, Expert Opinion on Drug Metabolism & Toxicology, 2016

Market Research: Iclaprim for Empiric Treatment of Hospitalized ABSSSI Patients with Renal Impairment

CLINICIAN MARKET RESEARCH
(Apr/May 2016)

45 Hospital Clinicians, including 15 ID specialists, 15 hospital pharmacy directors, 10 hospitalists/critical care, 5 ER physicians[1]

Nearly three-quarters of respondents participate on hospital P&T formulary committees

- Respondents estimated that on average 39% of skin infection patients have moderate to severe renal impairment, and many expect this rate to increase
- Clinicians viewed a target product profile for **iclaprim**
- Clinicians were asked to predict how they would treat their next 20 patients with MRSA skin infections if **iclaprim** was on their formulary. On average, respondents would use **iclaprim** in:
  - 40% of patients with moderate to severe renal impairment
  - 30% of patients with mild renal impairment
  - 20% of patients without renal impairment

[1] Assessment of Iclaprim Commercial Opportunity in the Gram-Positive Antibiotic Hospital Market, BAL Pharma Consulting, LLC (May 18, 2016).
Note: One of Motif's retained consultants acts as principal for BAL Consulting

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Differentiated and Underutilized MOA

Cell Wall Synthesis

Beta Lactams
- Carbapenems
- Ceftazidine
- Ceftiroline
- Ceftobiprole
- Glycopeptide

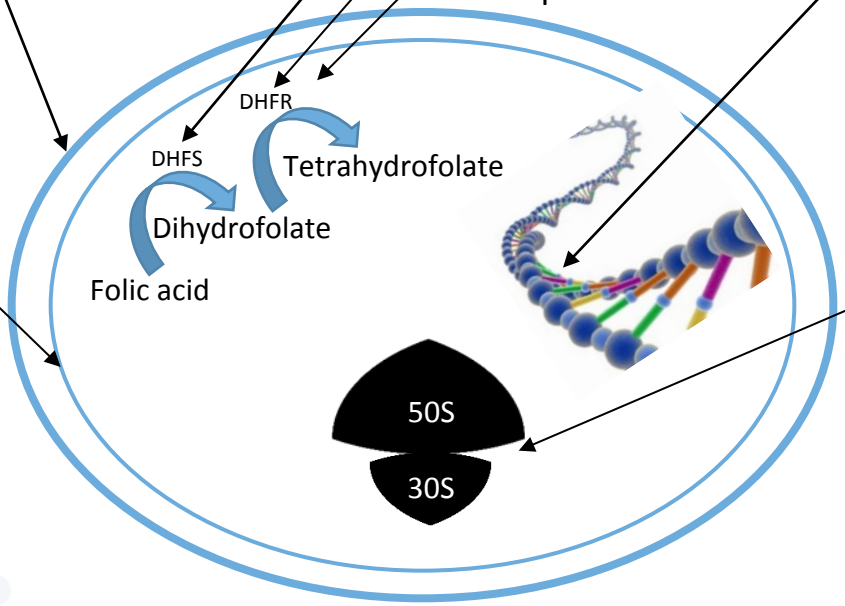
Peptidoglycan synthesis
- Dalbavancin
- Oritavancin
- Telavancin
- Vancomycin

Cell Membrane Integrity

- Colistin
- Daptomycin

Folate synthesis

- Sulfonamides
- **Iclaprim**
- Trimethoprim



Nucleic Acid Synthesis

DNA Gyrase
- Ciprofloxacin
- Delafloxacin
- Gatifloxacin
- Levofloxacin
- Moxifloxacin

RNA Polymerase
- Rifampin

Protein Synthesis

50S subunit
- Clindamycin
- Lefamulin
- Linezolid
- Solithromycin
- Tedizolid

30S subunit
- Amikacin
- Doxycycline
- Eravacycline
- Gentamicin
- Kanamycin
- Minocycline
- Neomycin
- Omadacycline
- Streptomycin
- Tobramycin

- **Iclaprim** has an under-utilized MOA that remains effective even in bacteria that have developed resistance to other MOAs, first approval for this MOA in 30+ years
- Like trimethoprim, **iclaprim** is a DHFR inhibitor but increased hydrophobic activity allows **iclaprim** to inhibit the F98Y enzyme with nanomolar affinity, enabling **iclaprim** to overcome the mechanism of trimethoprim resistance[1]
- Increased potency of **iclaprim** avoids need for combination with a sulfonamide

[1]Oefner C, et al. J Antimicrob Chemother. 2009;63:687-698.

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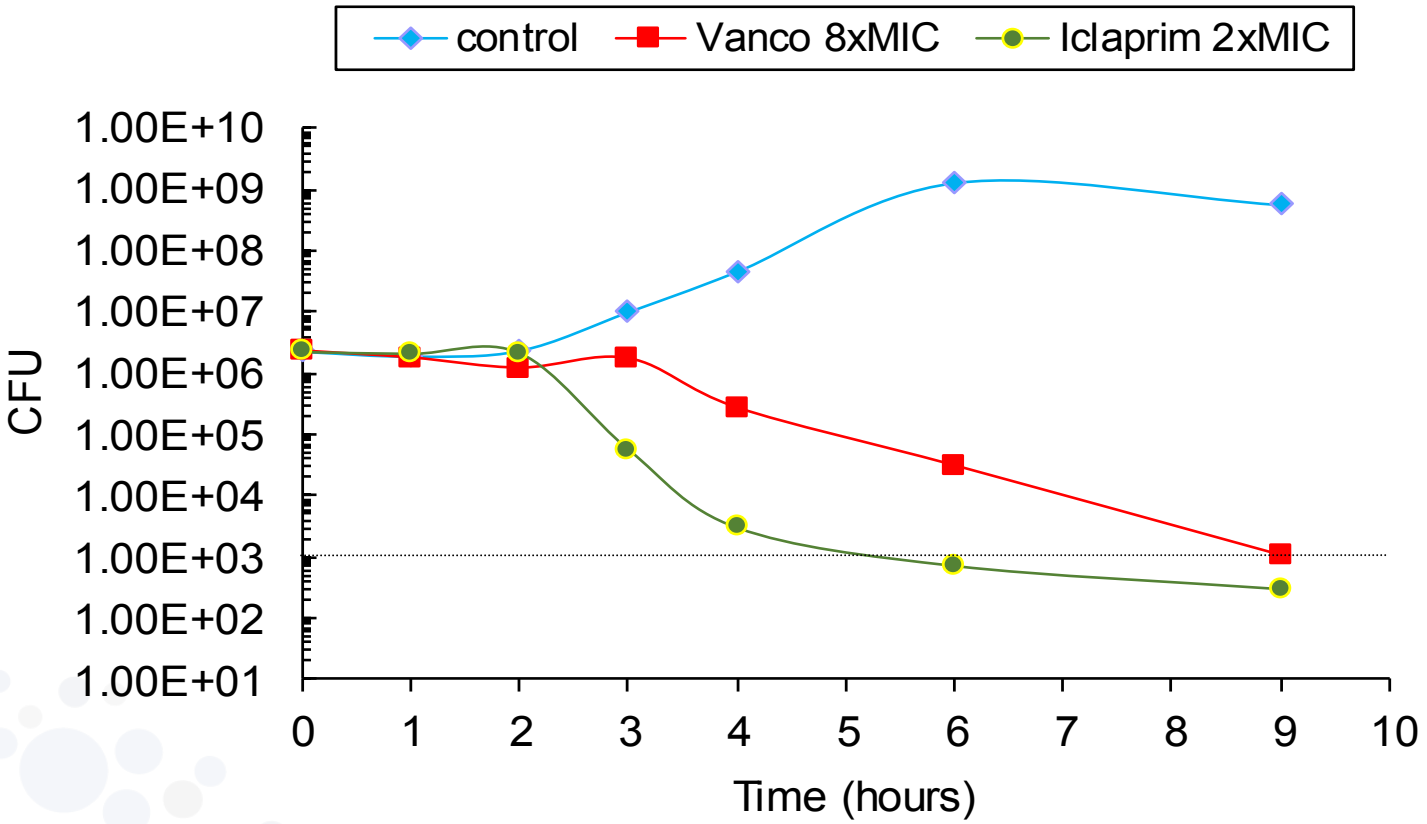
Iclaprim Fast Onset: Potential to Reduce Time in Hospital



In vitro **iclaprim** achieves 99.9% kill against MRSA within 4-6 hours of drug exposure, versus 8 to 10 hours for vancomycin

This is a representative time kill curve for 15 Gram-positive strains tested

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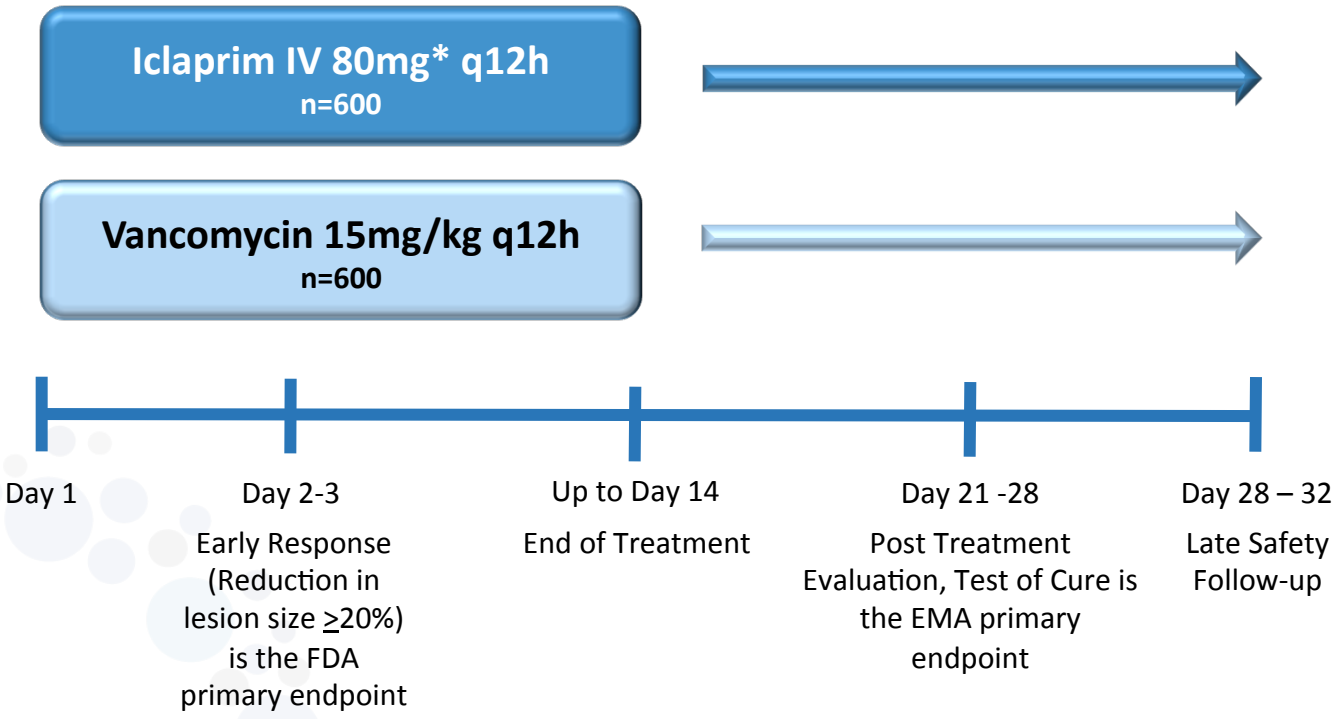
Motif "REVIVE" Phase 3 ABSSSI Trials Underway

Two trials, total of 1,200 patients, duration of treatment is 5 to 14 days
Data read-out expected in 2Q2017 from REVIVE-1 and 2H2017 from REVIVE-2

Dalbavancin, oritavancin approved in 2014 with same design, endpoints



*Optimized dose - improves PD[1] parameters associated with efficacy (AUC/MIC and T/MIC) by 30% and reduces Cmax, peak plasma levels, by 7%.

[1]Pharmacodynamic – the course of action, effect and breakdown of drugs within the body (Dictionary.com)

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Iclaprim: Excellent Opportunity in HABP

Iclaprim Achieves Good Lung Tissue Penetration in Healthy Volunteers

Antibiotic Concentrations in Epithelial Lining Fluid (ELF) and Alveolar Macrophages (AM) Compared with Serum Levels

Antibiotic	Dose	Epithelial lining fluid (mg/L)	Alveolar macrophages (mg/L)	Serum (mg/L)	ELF/serum concentration	AM/serum concentration
Iclaprim	1.6 mg/kg IV, single dose	40.9	67.7	1.8	22.7	37.6
Linezolid	600 mg q12h PO, 5 doses	622.8	27.2	190.0	3.3	0.14
Vancomycin	1 g q12h IV, 9 doses	92	926	367	0.25	2.5

High and sustained **iclaprim** concentrations in epithelial lining fluid and alveolar macrophages were **more than 20 and 30 times** the serum concentration, respectively, throughout an entire 7 hour sampling period

Kiem S, et al. Infect Chemother. 2014;46:219-225.

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Phase 2 - Clinical Cure Rates Numerically Higher than Vancomycin in HABP/VABP

- Phase 2 study in seventy patients with nosocomial pneumonia suspected or confirmed to be caused by Gram-positive bacteria were treated with one of two doses of **iclaprim** or with vancomycin for 7-14 days
- The primary efficacy endpoint was the proportion achieving a clinical cure 7-14 days post-treatment
- The authors concluded that **iclaprim** showed high clinical cure rates and a good safety profile

	Iclaprim 0.8 mg/kg q12h (n = 23)	**Iclaprim** 1.2 mg/kg q8h (n = 24)	**Vancomycin** 1 g q12h (n = 23)
Clinical cure	73.9%	62.5%	52.2%
Day 28 mortality	8.7%	12.5%	21.7%

Huang D, et al. ID Week 2015. October 9; Dan Diego, CA. Poster 891.

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Financial Overview

- Dual listed (MTFB) on Nasdaq and AIM; raised a total of ~$65mm
- The Company has 195,741,528 ordinary shares outstanding (Dec 31)
- Market capitalization $61mm (Mar 1) - 203mm shares (fully diluted, treasury method)

Significant Shareholders	Shareholding	Percentage
Invesco	49,416,000	25.2
Amphion Group	43,240,645	22.1
Sabby	17,191,980	8.8
Aviva	8,924,647	4.6

- 6/30/16 cash balance – approximately $19.5 mm ($40.9mm pro forma for November 2016 offering)

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Proven Motif Leadership Team

Management Team	Title	Current Affiliations / Prior Experience
Graham Lumsden, BVM&S, MRCVS, MCIM	Chief Executive Officer & Executive Director	MERCK
Rob Dickey IV	Chief Financial Officer	TYME INC, NeoStem, Lehman Brothers
David Huang, M.D., Ph.D.	Chief Medical Officer	Pfizer, ContraFect, Michael E. DeBakey VA Medical Center
Bob McCormack, Ph.D.	Regulatory (US)	CUBIST PHARMACEUTICALS
Richard Peck, Ph.D.	Regulatory (EU)	ARPIDA
Mark VanArendonk, Ph.D.	Manufacturing, CMC	Pharmacia & Upjohn, Pfizer, MERCK
Lynda Berne MS, MBA	Commercial, Sales Marketing, Reimbursement	Shire, Bristol-Myers Squibb, Abbott

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Scientific Advisory Board Comprised of ID Experts

Advisory Board	Current Affiliations / Prior Experience
Ralph Corey, M.D.	Professor of Medicine and Infectious Diseases at Duke University Medical Center; Director, Hubert-Yeargan Center for Global Health at Duke University; 30+ years of experience in ID research
Matthew Dryden, M.D., FRCPath	Director of Infection, Hampshire Hospitals, Winchester and University of Southampton, UK; General Secretary of the British Society for Antimicrobial Chemotherapy
Tom File, M.D., M.S.	Professor of Internal Medicine, Master Teacher and Chair of the Infectious Disease Section of Northeast Ohio Medical University; Chair, Division of Infectious Diseases, Summa Health System, Akron, Ohio; Past President of the National Foundation for Infectious Diseases
Jay Tischfield, Ph.D.	MacMillan Professor II and Founding Chair of the Department of Genetics at Rutgers University; Professor of Pediatrics and Psychiatry at Rutgers University; Director of the Human Genetics Institute of New Jersey; CEO and Scientific Director of RUCDR Infinite Biologics®
Antoni Torres, M.D.	Professor of Medicine at Faculty of Medicine at the University of Barcelona; Head of the Respiratory Intensive Care Unit in the Department of Pneumology and Respiratory Allergy, Clinical Institute of the Thorax, Hospital Clinic of Barcelona
Marc Wilcox, M.D.	Professor of Medical Microbiology at the University of Leeds; Head of Microbiology and Academic Lead of Pathology at Leeds Teaching Hospitals; Lead on *Clostridium difficile* for Public Health England; Deputy Chair of UK Department of Health's Antimicrobial Resistance and Healthcare Associated Infection (HCAI) Committee; Advisor to the Department of Health in England on HCAIs

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Summary

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